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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,270	03/12/2004	Chang-yeob Choo	1793.1168	5868

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
GIESY, ADAM	
ART UNIT	**PAPER NUMBER**
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,270	CHOO ET AL.	
	Examiner	Art Unit	
	Adam R. Giesy	2627	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi et al. (hereinafter Choi – 7,092,334 B2) in view of Koudo et al. (hereinafter Koudo – US Pat. No. 5,956,307).

Regarding claim 1, Choi discloses a method of recording data, the method comprising: recording the data on an optical disc that is rotating at a predetermined velocity (Figure 2, element S11); determining whether a data recording error occurs (S50); and if it is determined that the data recording error has occurred, rotating the optical disc at an adjusted velocity which is lower than the predetermined velocity, and recording the data on the optical disc that is rotating at the adjusted velocity (S51 and S52). Although Choi discloses a recording speed, Choi does not distinctly disclose "constant angular velocity.'

Koudo discloses a device for controlling the rotation of an optical disc wherein the disc is rotated at a constant angular verlocity (see column 32, lines 30-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Choi with the

rotation controlling device as disclosed by Koudo, the motivation being to lower power consumption and lessen heat generation within the drive.

Regarding claim 2, Choi and Koudo disclose all of the limitations of claim 1 as discussed in the claim 1 rejection above. Choi further discloses determining whether the data recording error occurs while the optical disc is rotated at the adjusted velocity, and if the data recording error is determined to exist, rotating the optical disk at a velocity that is lower than the adjusted velocity, and recording the data on the optical disc (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered until a recording stop command is given in S32).

Regarding claim 3, Choi and Koudo disclose all of the limitations of claim 2 as discussed in the claim 2 rejection above. Choi further discloses repeatedly determining whether the data recording error occurs while the optical disk is rotating (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered until a recording stop command is given in S32).

Regarding claim 4, Choi and Koudo disclose all of the limitations of claim 3 as discussed in the claim 3 rejection above. Choi further discloses rotating the optical disc at a lower constant angular velocity whenever the data recording error is detected (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered until a recording stop command is given in S32).

Regarding claim 5, Choi and Koudo disclose all of the limitations of claim 1 as discussed in the claim 1 rejection above. Choi further discloses that the adjusted

velocity is one step lower than the predetermined velocity (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process, thus the adjusted speed is one step below the predetermined speed).

Regarding claim 6, Choi and Koudo disclose all of the limitations of claim 1 as discussed in the claim 1 rejection above. Choi further discloses that the adjusted velocity is two steps lower than the predetermined constant angular velocity, according to an extent of the data recording error (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process, thus the adjusted speed is two steps below the predetermined speed on the second time through the error detection process).

Regarding claim 7, Choi and Koudo disclose all of the limitations of claim 1 as discussed in the claim 1 rejection above. Choi further discloses determining whether the data recoding error occurs due to a defect of the optical disc (see abstract).

Regarding claim 8, Choi and Koudo disclose all of the limitations of claim 7 as discussed in the claim 7 rejection above. Choi further discloses determining whether the data recoding error occurs due to the defect of the optical disc is accomplished using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal (see Figure 2, element S50 – note the clear use of the ATIP signal for the error detection; see also Figure 6, element S121 – note the clear use of the FE and TE signals in the error detection).

Regarding claim 9, Choi discloses a method of reproducing data, the method comprising: reproducing the data from an optical disc that is rotating at a predetermined velocity (Figure 2, element S40); determining whether a data reproduction error occurs (S50); and if it is determined that the data reproduction error has occurred, rotating the optical disc at an adjusted velocity which is lower than the predetermined velocity, and reproducing the data from the optical disc (S51 and S52). Although Choi discloses a disc speed, Choi does not distinctly disclose "constant angular velocity.'

Koudo discloses a device for controlling the rotation of an optical disc wherein the disc is rotated at a constant angular verlocity (see column 32, lines 30-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the reproducing device as disclosed by Choi with the rotation controlling device as disclosed by Koudo, the motivation being to lower power consumption and lessen heat generation within the drive.

Regarding claim 10, Choi and Koudo disclose all of the limitations of claim 9 as discussed in the claim 9 rejection above. Choi further discloses determining whether a data reproduction error occurs while the optical disc is rotated at the adjusted velocity, and if the data reproduction error is determined to exist, rotating the optical disc at a velocity which is lower than the predetermined velocity, and reproducing the data from the optical disc (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered until a recording stop command is given in S32).

Regarding claim 11, Choi and Koudo disclose all of the limitations of claim 9 as discussed in the claim 9 rejection above. Choi further discloses repeatedly determining whether the data reproduction error occurs while the optical disk is rotating (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered until a recording stop command is given in S32).

Regarding claim 12, Choi and Koudo disclose all of the limitations of claim 11 as discussed in the claim 11 rejection above. Choi further discloses rotating the optical disc at a lower constant angular velocity whenever the data reproduction error is detected (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered until a recording stop command is given in S32).

Regarding claim 13, Choi and Koudo disclose all of the limitations of claim 9 as discussed in the claim 9 rejection above. Choi further discloses that the adjusted constant angular velocity is one step lower than the predetermined constant angular velocity (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process, thus the adjusted speed is one step below the predetermined speed).

Regarding claim 14, Choi and Koudo disclose all of the limitations of claim 9 as discussed in the claim 9 rejection above. Choi further discloses that the adjusted constant angular velocity is two step lower than the predetermined constant angular velocity, according to an extent of the data reproduction error (see Figure 2, elements

S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process, thus the adjusted speed is two steps below the predetermined speed on the second time through the error detection process).

Regarding claim 15, Choi and Koudo disclose all of the limitations of claim 9 as discussed in the claim 9 rejection above. Choi further discloses determining whether the data reproduction error occurs due to a defect of the optical disc (see abstract).

Regarding claim 16, Choi and Koudo disclose all of the limitations of claim 15 as discussed in the claim 15 rejection above. Choi further discloses using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal to determine whether the data reproduction error occurs due to a defect of the optical disc (see Figure 2, element S50 – note the clear use of the ATIP signal for the error detection; see also Figure 6, element S121 – note the clear use of the FE and TE signals in the error detection).

Regarding claim 17, Choi discloses an apparatus for recording data, the apparatus comprising: a motor driver which controls a motor which rotates an optical disc (Figure 1, element 71); an optical pickup which irradiates light onto the optical disc, detects the light reflected from the optical disc, and outputs a radio frequency signal corresponding to the reflected light (20); a radio frequency signal processor which, in response to the radio frequency signal, generates and outputs a recording error signal that indicates whether a data recording error occurs (50); and a controller which, in response to the recording error signal, determines whether the data recording error

occurs, and if it is determined that the data recording error has occurred, controls the motor driver to rotate the optical disc at a velocity which is lower than a predetermined velocity (80). Although Choi discloses a disc speed, Choi does not distinctly disclose "constant angular velocity.'

Koudo discloses a device for controlling the rotation of an optical disc wherein the disc is rotated at a constant angular verlocity (see column 32, lines 30-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Choi with the rotation controlling device as disclosed by Koudo, the motivation being to lower power consumption and lessen heat generation within the drive.

Regarding claim 18, Choi and Koudo disclose all of the limitations of claim 17 as discussed in the claim 17 rejection above. Choi further discloses that the controller controls the motor driver to lower the velocity at which the optical disk is rotated until the data recording error does not occur (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process until the error is not present).

Regarding claim 19, Choi and Koudo disclose all of the limitations of claim 18 as discussed in the claim 18 rejection above. Choi further discloses that if it is determined that the data recording error has occurred, the controller controls the motor driver to rotate the optical disc at a velocity which is one step lower than the predetermined velocity (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error

detection process, thus the adjusted speed is one step below the predetermined speed).

Regarding claim 20, Choi and Koudo disclose all of the limitations of claim 18 as discussed in the claim 18 rejection above. Choi further discloses that if it is determined that the data recording error has occurred, the controller controls the motor driver to rotate the optical disc at a velocity which is two steps lower than the predetermined velocity, according to an extent of the data recording error (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process, thus the adjusted speed is two steps below the predetermined speed on the second time through the error detection process).

Regarding claim 21, Choi and Koudo disclose all of the limitations of claim 17 as discussed in the claim 17 rejection above. Choi further discloses that the controller determines whether the data recording error occurs due to a defect of the optical disc (see abstract).

Regarding claim 22, Choi and Koudo disclose all of the limitations of claim 21 as discussed in the claim 21 rejection above. Choi further discloses that the controller determines whether the data recording error occurs due to the defect of the optical disc using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal which are output from the radio frequency signal processor (see Figure 2, element S50 – note the clear use of the ATIP signal for the error detection; see also Figure 1, elements 50 and 60).

Regarding claim 23, Choi and Koudo disclose all of the limitations of claim 22 as discussed in the claim 22 rejection above. Choi further discloses that the controller determines the data recording error occurs when a value of the focus error signal or the tracking error signal exceeds a predetermined range, or errors occur in at least a predetermined number of ATIP sync signals to be periodically input (see Figure 2, elements S20, and S50).

Regarding claim 24, Choi and Koudo disclose all of the limitations of claim 22 as discussed in the claim 22 rejection above. Choi further discloses that the controller divides the value of the focus error signal or the tracking error signal into a plurality of ranges, determines in which of the ranges the recording error belongs, and determines to what extent the constant angular velocity is to be lowered according to the magnitude of the value of the focus error signal or the tracking error signal (see column 3, line 35 thru column 4, line 5 – see especially column 4, lines 1-5 – note that the microcomputer lowers the speed 'adequately').

Regarding claim 25, Choi discloses an apparatus for reproducing data, the apparatus comprising: a motor driver which controls a motor which rotates an optical disc (Figure 1, element 71); an optical pickup which irradiates light onto the optical disc, detects the light reflected from the optical disc, and outputs a radio frequency signal corresponding to the reflected light (20); a radio frequency signal processor which, in response to the radio frequency signal, generates and outputs a reproduction error signal that indicates whether a data reproduction error occurs (50); and a controller which, in response to the reproduction error signal, determines whether the data

reproduction error occurs, and if it is determined that the data reproduction error has occurred, controls the motor driver to rotate the optical disc at a constant angular velocity which is lower than a predetermined constant angular velocity (80). Although Choi discloses a disc speed, Choi does not distinctly disclose "constant angular velocity.'

Koudo discloses a device for controlling the rotation of an optical disc wherein the disc is rotated at a constant angular verlocity (see column 32, lines 30-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the reproducing device as disclosed by Choi with the rotation controlling device as disclosed by Koudo, the motivation being to lower power consumption and lessen heat generation within the drive.

Regarding claim 26, Choi and Koudo disclose all of the limitations of claim 25 as discussed in the claim 25 rejection above. Choi further discloses that the controller controls the motor driver to lower the velocity at which the optical disk is rotated until the data reproduction error does not occur (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process until the error is not present).

Regarding claim 27, Choi and Koudo disclose all of the limitations of claim 26 as discussed in the claim 26 rejection above. Choi further discloses that if it is determined that the data reproduction error has occurred, the controller controls the motor driver to rotate the optical disc at a velocity which is one step lower than the predetermined velocity (see Figure 2, elements S50, S51, and S52 – note that since these processes

occur in a loop, the speed will be lowered by one step with each cycle through the error detection process, thus the adjusted speed is one step below the predetermined speed).

Regarding claim 28, Choi and Koudo disclose all of the limitations of claim 26 as discussed in the claim 26 rejection above. Choi further discloses that if it is determined that the data reproduction error has occurred, the controller controls the motor driver to rotate the optical disc at a velocity which is two steps lower than the predetermined velocity, according to an extent of the data rereproduction error (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process, thus the adjusted speed is two steps below the predetermined speed on the second time through the error detection process).

Regarding claim 29, Choi and Koudo disclose all of the limitations of claim 25 as discussed in the claim 25 rejection above. Choi further discloses that the controller determines whether the data reproduction error occurs due to a defect of the optical disc (see abstract).

Regarding claim 30, Choi and Koudo disclose all of the limitations of claim 26 as discussed in the claim 26 rejection above. Choi further discloses that the controller determines whether the data reproduction error occurs due to the defect of the optical disc using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal which are output from the radio frequency signal processor (see Figure 2,

element S50 – note the clear use of the ATIP signal for the error detection; see also Figure 1, elements 50 and 60).

Regarding claim 31, Choi and Koudo disclose all of the limitations of claim 30 as discussed in the claim 30 rejection above. Choi further discloses that the controller determines the data reproduction error occurs when a value of the focus error signal or the tracking error signal exceeds a predetermined range, or errors occur in at least a predetermined number of ATIP sync signals to be periodically input (see Figure 2, elements S20, and S50).

Regarding claim 32, Choi and Koudo disclose all of the limitations of claim 30 as discussed in the claim 30 rejection above. Choi further discloses that the controller divides the value of the focus error signal or the tracking error signal into a plurality of ranges, determines in which of the ranges the reproduction error belongs, and determines to what extent the velocity is to be lowered according to the magnitude of the value of the focus error signal or the tracking error signal (see column 3, line 35 thru column 4, line 5 – see especially column 4, lines 1-5 – note that the microcomputer lowers the speed 'adequately').

Regarding claim 33, Choi discloses a method of recording and/or reproducing data, the method comprising: at least one of, recording the data on an optical disc that is rotating at a predetermined velocity, and reproducing the data from an optical disc that is rotating at a predetermined velocity (see Figure 2, element S11); determining whether at least one of a data recording error or a data reproduction error occurs (S50); if it is determined that the data recording error has occurred, rotating the optical disc at

an adjusted constant angular velocity which is lower than the predetermined velocity, and recording the data on the optical disc that is rotating at the adjusted velocity (S51 and S52); and if it is determined that the data reproduction error has occurred, rotating the optical disc at an adjusted velocity which is lower than the predetermined velocity, and reproducing the data from the optical disc that is rotating at the adjusted constant angular velocity (S51 and S52). Although Choi discloses a disc speed, Choi does not distinctly disclose "constant angular velocity.'

Koudo discloses a device for controlling the rotation of an optical disc wherein the disc is rotated at a constant angular verlocity (see column 32, lines 30-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the reproducing device as disclosed by Choi with the rotation controlling device as disclosed by Koudo, the motivation being to lower power consumption and lessen heat generation within the drive.

Regarding claim 34, Choi and Koudo disclose all of the limitations of claim 33 as discussed in the claim 33 rejection above. Choi further discloses determining whether at least one of the data recording error or the data reproduction error occurs while the optical disc is rotated at the adjusted velocity (see Figure 2, elements S50, S51, and S52 – note that since these processes occur in a loop, the speed will be lowered by one step with each cycle through the error detection process, thus the adjusted speed is two steps below the predetermined speed on the second time through the error detection process); if the data recording error is determined to exist, rotating the optical disk at a velocity that is lower than the adjusted velocity, and recording the data on the optical

disc (see Figure 2, elements S50, S51, and S52); and if the data reproducing error is determined to exist, rotating the optical disk at a velocity that is lower than the adjusted velocity, and reproducing the data from the optical disc (see Figure 2, elements S50, S51, S52, and also S12).

Regarding claim 35, Choi and Koudo disclose all of the limitations of claim 34 as discussed in the claim 34 rejection above. Choi further discloses repeatedly determining whether at least one of the data recording error or the data reproducing error occurs while the optical disk is rotating (see abstract).

Regarding claim 36, Choi and Koudo disclose all of the limitations of claim 35 as discussed in the claim 35 rejection above. Choi further discloses rotating the optical disc at a lower constant angular velocity whenever at least one of the data recording error or the data reproducing error is detected (see Figure 2, elements S51 and S52).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Schultz et al. (US Doc. No. 2003/0058762 A1) discloses a defect detection system that uses error signals upon playback of a recorded medium.

b. Lee (US Pat. No. 6,538,967 B1) discloses a defect detection system that decreases the speed based upon detected defects in the disc.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam R. Giesy whose telephone number is (571) 272-7555. The examiner can normally be reached on 8:00am- 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ARG 2/16/2007

Adam R. Giesy

William Korzuch

WILLIAM KORZUCH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600